

Application No. 09/522,349
Response to Office Action of July 10, 2007

REMARKS/ARGUMENTS

I. Discussion of the Amendment and the Rejection of Claims under 35 USC § 112, Second Paragraph

II.

Examiner has rejected Claim 38 under 35 USC § 112, second paragraph as indefinite due to its dependency from cancelled Claim 4. Applicant has amended Claim 38 to depend from pending Claim 18. Accordingly, this rejection should be withdrawn.

Applicant has amended Claim 1 to more clearly claim the invention. Claims 40, 41 and 42 to correct obvious typographical errors and has added new Claim 43 which specifies that the cellulose fiber network comprises pulp fibers. There is clear antecedent basis for this amendment in the originally filed application. See for example Figures 1 and 2 and page 1, lines 6 to 18 of the specification which states that final product is paper which is known to comprise pulp. See the American Heritage College Dictionary, Third Edition, at page 988 (a copy of which is attached) states that paper is "a material made of cellulose pulp".

II. Rejection of Claims Under 35 USC § 103(a)

Claims 1-3, 6, 8, 20-27, 29, 31, 38 and 41-42 are rejected under 35 USC § 103(a) as being unpatentable over US 4,551,377 ("Elves et al"). This rejection is respectfully traversed.

This invention is directed to a crack-resistant printing paper or board comprising a cellulose fiber network web; and a polymer material impregnated into the web in thin discontinuous geometrical formations, wherein the polymer material is no more than 5% of the basis weight of the paper or board. Especially good results

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are unexpectedly obtained when the polymer is impregnated into the web in thin rectangular striper, equi-distant circles or diamond-shape formations as claimed in Claim 3. Examiner's attention is directed to the examples at pages 5 and 6 of the application. As stated in the application, a web impregnated with a polymer in a circular geometrical patterns provided appreciably higher fracture toughness in both the MD and CD direction and a web impregnated with polymer in a rectangular geometrical pattern provided a paper or paper board having superior durability in the MD direction and improved fracture toughness in the CD direction as compared to the control.

It is applicant's position that this invention is not obvious in view of Elves et al.

Elves et al. is directed to absorbent pads. At column 1, lines 36 to 38, Elves et al. state that there were problems associated with conventional absorbent pads at the time that the invention of Elves et al. was made stating that:

"tissue/polyethylene pads have a problem that when the pads are saturated they have low abrasion resistance and tend to break up" (emphasis added)

At column 1, lines 41 to 46, Elves et al. solve this problem by providing an:

"absorbent pad of non-woven fabric having on one side a layer of binding material for providing a surface having an absorbency reduced with respect to the remainder of the pad, the remainder of the pad being free of binder." (Emphasis added)

There are significant differences between the present invention and the disclosure of Elves et al. For example, in the paper and board of the present invention, the polymer material is impregnated into the web in thin discontinuous formations. This is distinctly different from the absorbent pad of Elves et al. in which the binder material is "a layer of binder material for producing a surface." (See Elves

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et al. at lines 43 and 44 of column 1 and lines 1 and 2 of column 2.) The American Heritage College Dictionary, third edition at page 770 (a copy of which is attached) a layer is defined as:

"A single thickness of a material covering a surface as forming an overlying part of segment",

and at page 1366 (a copy of which is attached) a surface is defined as:

"The outer or topmost boundary of an object"

If a material is provided as a layer sufficient to cover a surface it is clearly not in thin discontinuous geometrical formations as is required by the claimed invention.

Contrary to Examiner's assertion, another difference between the claimed invention and that of Elves et al is that in the Elves et al. invention the layer of binder material is not impregnated into the web as is required in the claimed invention. At column 2, lines 47 to 48, Elves et al. expressly states that:

*"The binder material is of high viscosity to prevent penetration of the web."
(Emphasis added)*

If the binder material in Elves, et. al. is applied to the web such that penetration of the web is prevented; The material clearly does not impregnate the web as in the claimed invention. Moreover, at column 1, lines 41 to 46, Elves et al. discloses that its absorbent pads have "on one side a layer of binder material for providing a surface" and the "remainder of the pad being free of binder." If the binder material is on a side of the pad and the remainder of the pad is free of binder material, there is clearly no impregnation of the binder material into the pad.

This rejection is clearly inappropriate and should be withdrawn.

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Claims 18 and 39-40 are rejected as being unpatentable over Elves et al. in view of US 4,784,917 ("Tawana et al."). This rejection is respectfully traversed.

The deficiencies of Elves et al. have been discussed above. These deficiencies are not obviated by Tawana et al.

Tawana et al. is directed to thermosetting resin and a laminated board employing the resin for use in printed circuit boards. It is readily apparent that Tawana et al. is non-analogous art and cannot serve as a basis for a rejection of the present invention. Note that this reference does not relate to the paper and board field of the present invention or the absorbent pad field of the invention of Elves et al. Nor does this invention address the problems solved by the present invention or those of Elves et al. For this reason alone, a rejection based on a combination of Tawana et al. and Elves et al. is inappropriate. See In re Clay, 966 F2d 656 and 23 USPQ 2d 1058 (Fed. Cir. 1992).

Examiner appears to rely on Tawana et al. as teaching that "impregnated poly butadiene is conventional in the art." The issue is which art. Just because a practice may be conventional in the printed circuit board art does not mean that it is conventional in the paper or board art of this invention or the absorbent pad art of Elves et al., the primary reference. This is especially true in the instant case since Elves et al. expressly teaches away from any impregnation in the absorbent pad while Tawana et al. requires impregnation to form the printed circuit board laminate. What reason is there for one of ordinary skill in the art to modify the web Elves et al. based on the teachings of Tawana et al. in the face of express teachings in Elves et al. not to do so? There is clearly no reason to do so.

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The rejection is inappropriate and should be withdrawn.

Claims 1-2, 6, 8, 21, 25-26, 29, 311-33 and 37 are rejected under 35 USC § 103(a) as being unpatentable over US 5,209,965 ("Caldwell"). This rejection is respectfully traversed.

Caldwell discloses a process for treating a porous web (especially fabric) to produce a novel silicone polymer internally coated web. As noted in the Abstract, the webs produced by the process are breathable, waterproof or highly water repellent.

This reference does not teach or suggest that the polymer material is impregnated in thin geometrical formulation. Examiner acknowledges the absence of an explicit teaching but nevertheless considers the claimed invention obvious in view of this reference stating that "the shape of the applied polymers binder material is a design choice". In re Dailey, 149 USPQ 47 (CCPA 1960).

Applicant disagrees with this assessment of the situation. There is no apparent reason of record for one of ordinary skill in the art to modify the web of Caldwell to arrive at the paper or board of the claimed invention. The objective of Caldwell is treat a porous web to produce a silicone polymer internally coated web which is breathable, waterproof or highly water repellent and flexible. Why would one of ordinary skill in the art modify the web of Caldwell to form the paper or board of this invention in which the web is impregnated with polymer in thin discontinuous geometrical formations forming regions which are impregnated with the polymer and regions that are not impregnated which would not be waterproof or water repellent which is an expressed objective of Caldwell? The shape of the applied polymer


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material cannot be a matter of design choice where the shape specified in the claims would render the prior art web inoperable for its intended use. In effect, this reference teaches away from the present invention. See In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

This rejection is clearly inappropriate and should be withdrawn.

In view of the foregoing arguments Applicant respectfully requests reconsideration and a speedy allowance of all pending claims.

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